This document outlines the various deployment scenarios for Unified Access Points (UAPs) and the procedures involved in deploying the APs in Switch-based and AOS-W Instant operating modes. The APs run different images for Switch-based (AOS-W image) and Switchless (AOS-W Instant image) modes.

Starting from AOS-W 8.5.0.0, the default management credentials for AP for WebUI, SSH, and console access are:

- **Username:** admin
- **Admin:** serial number of the AP

The same credentials will be used if APs running software versions prior to 8.5.0.0 are upgraded to 8.5.0.0 and factory reset. If the AP is part of a cluster, the username will be admin and the password will be the serial number of an AP in the cluster.

Deployment Scenarios and Procedures

This section outlines the various scenarios involved in the deployment of APs in a Switch-based or Switchless customer network. The APs introduced in this release can run in both Switch-based mode and Switchless mode. Based on the mode selected, the AP runs a corresponding image:

- Switch mode will run AOS-W image
- Switchless mode will run AOS-W Instant image

Each AP is deployed with an AOS-W Instant image. APs with the AOS-W Instant image can act as its own AOS-W Instant virtual Switch. An AP with the AOS-W Instant image will run a full discovery logic. Based on that, it will download the AOS-W or AOS-W Instant image and convert to the corresponding mode. For more information on discovery logic, refer to the AP Discovery Logic section in the *AOS-W User Guide* and the *AOS-W Instant User Guide.*

Read through the scenarios given in this document carefully to choose the best-suited procedure for your deployment needs.

Deploy APs in a Centralized Switch-Based Network

This section outlines the following scenarios for deploying APs purely in a centralized Switch-based network.

AP has Access to the Console

1. Set the Server IP address in apboot.
2. Upgrade AOS-W image from apboot.
3. Reboot the AP with the AOS-W image.

NOTE	If a static environment variable is set in apboot for the conductor AP, the above steps are executed automatically during the Switch discovery stage.

Switch-based AP to be deployed in a separate lab deployment network

Some users prefer to deploy the AP in a separate test lab environment before deploying it for general use on the working network. In such a scenario, Layer 2 switches are used to connect the Switch and the AP. There are no Dynamic Host Configuration Protocol (DHCP) or Domain Name System (DNS) Switch settings involved and the AP discovers the Switch through Aruba Discovery Protocol (ADP).

Case 1: AP is powered ON, Switch status is UP, and AP discovers the Switch through ADP.

- AP boots up with the AOS-W Instant image.
- AP discovers the Switch through ADP.
- AP downloads the AOS-W image from the Switch and reboots with the AOS-W firmware.
- When the AP is up and running as a Switch-based AP, provision the AP using the AOS-W provisioning procedure. For information on AOS-W provisioning, refer to the *AOS-W User Guide*.

Case 2: AP is powered ON, Switch is not ready, and AP is unable to detect the Switch through ADP during the initial bootup stage.

- By default, the AP transitions to the AOS-W Instant mode if no Switch is found in the initial discovery stage. In order to restrain the AP from transitioning to the AOS-W Instant mode, there should be no AOS-W Instant Virtual Switch, OmniVista 3600 Air Manager, or Activate found in the discovery stage.
- If no Switch is found in the initial discovery stage, the AP waits for a few minutes in the factory-default state. If there are no changes in the configuration, the AP reboots and repeats the discovery procedure from the beginning.
- After the AP discovers the Switch, the AOS-W image is upgraded on the AP and the AP reboots.
- When the AP is up and running as a Switch-based AP, provision the AP using the AOS-W provisioning procedure. For information on AOS-W provisioning, see the *AOS-W User Guide.*

Direct deployment of APs in a new Switch-based network

In this scenario, the AP and Switch are directly deployed in a customer's running network. In a Switch-based network, the AP and the Switch are usually deployed in different subnets. However, there are cases when the AP and the Switch belong to the same subnet and the Switch can be discovered through DHCP, DNS, or ADP.

Case 1: Factory-default AP is powered ON, Switch is already up, and AP is able to find the Switch through DHCP or DNS.

- AP boots up with the AOS-W Instant image.
- AP discovers the Switch through DHCP or DNS.
- AP downloads the AOS-W image from the Switch and reboots as an AP running the AOS-W firmware.
- When the AP is up and running as a Switch-based AP, provision the AP using the AOS-W provisioning procedure. For information on AOS-W provisioning, refer to the *AOS-W User Guide*.

Case 2: Factory-default AP is powered ON, Switch is not ready, and AP is unable to detect the Switch during the initial bootup stage.

- If the AP is unable to connect to the Switch, the AP attempts to reconnect multiple times before it reboots.
- If the AP is able to connect to the Switch, then the AOS-W image is downloaded to the AP and the AP reboots.
- When the AP is up and running as a Switch-based AP, provision the AP using the AOS-W provisioning procedure. For information on AOS-W provisioning, refer to the *AOS-W User Guide*.

Incremental deployment of APs in a Switch-based network

There are two ways to add or replace APs in a customer network with existing Switch and OAW-AP devices:

- If only a few APs need to be added to the customer network, you can use the AP console connection to statically set the environment variables in apboot mode.
- If you do not wish to set the apboot environment variable manually, use the ADP, DHCP, or DNS method of Switch-based discovery. For more information on configuring an AP's environment variables through a console connection, refer to the **Managing AP Console Settings** section of the **Access Points** chapter of the *AOS-W User Guide*.

Deploy APs in an AOS-W Instant network

The following are the most common cases in OAW-IAP deployments:

Deployment of an AP in a Running AOS-W Instant Network

In this scenario, there is an actively running AOS-W Instant network with a conductor AOS-W Instant AP.

The AP is able to successfully discover the AOS-W Instant Virtual Switch and join the cluster. The AOS-W Instant image in the AP is upgraded to the AOS-W Instant image of the virtual Switch and the configuration is synchronized from the Virtual Switch to the newly added AOS-W Instant AP.

Deployment of a New AOS-W Instant AP Cluster when OmniVista 3600 Air Manager and Activate are reachable

In this scenario, there is no cluster deployed in the subnet but OmniVista 3600 Air Manager and Activate can be reached over the network.

APs are upgraded to the OmniVista 3600 Air Manager and Activate through the following steps:

1. The AP boots up with the AOS-W Instant image and attempts to locate Activate.
2. If the AP locates Activate, it receives pre-configured provisioning rules to connect to OmniVista 3600 Air Manager or convert into a Campus AP or Remote AP. If Activate is unreachable, the AP attempts to locate a virtual Switch or OmniVista 3600 Air Manager.
3. If the AP locates OmniVista 3600 Air Manager, it can be upgraded to the AOS-W Instant image. If an enforced image upgrade rule is configured in OmniVista 3600 Air Manager, the AP is upgraded to the AOS-W Instant image that is configured for the enforced upgrade rule. If no enforced upgrade rule is configured, the AP is upgraded to the latest AOS-W Instant image in OmniVista 3600 Air Manager. After the AP is upgraded, it reboots in Switch-less mode. Refer to the latest *OmniVista 3600 Air Manager User Guide* for details on AP image upgrade.
4. After the AP is upgraded to Switch-less mode, it forms a new AOS-W Instant AP cluster and converts into the conductor. Other APs which are not deployed can join the cluster and upgrade to the AOS-W Instant image.

Deployment of an AP when OmniVista 3600 Air Manager and Activate are not reachable

In this scenario, when the AOS-W Instant AP is being deployed, it is possible that the WAN link could be down or OmniVista 3600 Air Manager or Activate is not reachable. One of the possible ways to upgrade the AP with the AOS-W Instant image is to use the specific service set identifier (SSID) that is broadcast by the AP to upgrade the AOS-W Instant image locally. The following cases must be considered in this scenario:

Case 1: All APs to be deployed are of the same image class

When all the APs are of the same type, it would be sufficient to upgrade one of the APs with the AOS-W Instant image. This AP will assume automatically assume the role of the conductor AOS-W Instant AP after it

reboots. All other APs are then allowed to join the conductor AOS-W Instant AP and upgrade to the AOS-W Instant image.

Case 2: APs to be deployed have a different image class

Because the AOS-W Instant image cannot be upgraded online though OmniVista 3600 Air Manager or Activate, the AOS-W Instant image needs to be upgraded on all the APs using a local method.

1. Select one AP from each of the image class types.
2. Upgrade the AOS-W Instant image manually on each of the AP types by accessing the SSID broadcast when the AP is in its factory-default state.
3. Reboot the APs and deploy the rest of the APs to upgrade to the respective AOS-W Instant image class.

Deploy AP as a Switch-Based AP in a Hybrid Switch and AOS-W Instant Network

A hybrid Switch and AOS-W Instant network deployment means that the Switch-based and Switchless deployment criteria co-exist when deployed in a customer network. Since the Switch and the AOS-W Instant OmniVista 3600 Air Manager discovery process involve DHCP or DNS mode of discovery, deployment requires the following conditions to be met.

- The Switch-based APs and Switchless AOS-W Instant APs must work on different subnets.
- The mode of discovery used for Switch based APs and Switchless AOS-W Instant APs should be different. For example, if the Switch-based APs use DHCP for discovery, then the Switchless AOS-W Instant APs should use the DNS mode of discovery.
- If both types of APs (Switch and AOS-W Instant AP) should use the same mode of discovery, then the DHCP server response must be through either the subnet or the vendor ID.
- The DNS mode of discovery cannot be used for both types of APs in a hybrid deployment as DNS is a Layer 3 protocol and does not have a subnet limit.

Manual Conversion of AP

This section describes how to manually convert a factory default AP to a OAW-AP, OAW-RAP, or OAW-IAP.

Manual Conversion of AP to OAW-AP or OAW-RAP

If the AP cannot be converted into a OAW-AP or OAW-RAP through Activate, users can connect to a special provisioning SSID broadcasted by the unprovisioned AP to manually convert the AP to a OAW-AP or a OAW-RAP through the WebUI. To manually convert an AP to a OAW-AP or OAW-RAP in the WebUI:

1. On your device, connect to the following provisioning SSID broadcasted by the unprovisioned AP: **SetMeUp-xx:xx:xx**.
2. Open a web browser. You will automatically be redirected to a special provisioning page in the WebUI to convert the AP.
3. Under **Maintenance > Convert**, select **OAW-AP** or **OAW-RAP**.
4. Enter the IP address or host name of the Switch to which the OAW-RAP or OAW-AP will be connected.
5. Click **Convert Now**.

Manual Conversion of AP to OAW-IAP

If the AP cannot be upgraded into an OAW-IAP through a virtual Switch, OmniVista 3600 Air Manager or Activate, users can connect to a special provisioning SSID broadcasted by the unprovisioned AP to manually convert the AP to an OAW-IAP through the WebUI. To manually convert an AP to an OAW-IAP in the WebUI:

1. Login to your virtual Switch.
2. Connect to the following provisioning SSID broadcasted by the unprovisioned AP: **SetMeUp-xx:xx:xx**.
3. Open a web browser. You will automatically be redirected to a special provisioning page in the WebUI to convert the AP.
4. Under **Maintenance > Firmware**, select **Image File** or **Image URL** to upload the AOS-W Instant image.
   a. If you select **Image File**, click **Browse** to locate and select an AOS-W Instant image file from your local file explorer.
   b. If you select **Image URL**, enter the web address of the AOS-W Instant image in the **URL** field.
5. Click **Upgrade Now**.

After the AP is upgraded, it reboots in AOS-W Instant mode.

Remote Deployment of AP in a Switch-Based Network

The remote deployment scenario uses the same procedure as that of the current AOS-W provisioning of OAW-RAPs. The primary reason is to be able to use a specific SSID and a WebUI to locally configure the factory-default AP as a OAW-RAP.

Following are the steps involved in deploying a Switch-based OAW-RAP:

1. Add the OAW-RAP whitelist to the Switch OAW-RAP whitelist table which includes rap-mac, ap-group, ap-name, and other entries.
2. Connect the AP at the remote location.
3. Boot up the factory-default AP. Normally, there is no DHCP option 43 and DNS Switch options at the remote site. The AP boots up in its factory-default state and enters the AOS-W Instant-discovery stage. The AP runs in the unprovisioned state and broadcasts an SSID in the 2.4 GHz radio.
4. Connect your laptop to the SSID and access the WebUI. The WebUI presents the option to select the mode of installation and other options such as Switch IP, uplink type, and static IP.
5. Select the mode of installation as **OAW-RAP**. The AP tries to establish an IPsec tunnel to the Switch,
6. downloads the image, and reboots.

Regulatory Compliance

Alcatel-Lucent recommends an upgrade of the AOS-W Instant AP firmware and/or downloadable regulatory table (DRT) file to the latest available version. This ensures that the AOS-W Instant AP supports the most up-to-date set of countries and regulatory specifications.

Terminology Change

As part of advancing Alcatel-Lucent Enterprise's commitment to racial justice, we are taking a much-needed step in overhauling ALE engineering terminology to reflect our belief system of diversity and inclusion. Some legacy products and publications may continue to include terminology that seemingly evokes bias against specific groups of people. Such content is not representative of our ALE culture and moving forward, ALE will replace racially insensitive terms and instead use the following new language:

Usage	Old Language	New Language
Campus Access Points + Controllers	Master-Slave	Conductor-Member
Instant Access Points	Master-Slave	Conductor-Member
Switch Stack	Master-Slave	Conductor-Member
Wireless LAN Controller	Mobility Master	Mobility Conductor
Firewall Configuration	Blacklist, Whitelist	Denylist, Allowlist
Types of Hackers	Black Hat, White Hat	Unethical, Ethical

Contacting Support

Table 1: *Contact Information*

Contact Center Online	
Main Site	https://www.al-enterprise.com
Support Site	https://myportal.al-enterprise.com/
Email	ebg_global_supportcenter@al-enterprise.com
Service & Support Contact Center Telephone	
North America	1-800-995-2696
Latin America	1-877-919-9526
EMEA	+800 00200100 (Toll Free) or +1(650)385-2193
Asia Pacific	+65 6240 8484
Worldwide	1-818-878-4507

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